



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,907	11/21/2003	Warren M. Farnworth	01-1059.2	4038
22823	7590	11/02/2005	EXAMINER	
STEPHEN A GRATTON THE LAW OFFICE OF STEVE GRATTON 2764 SOUTH BRAUN WAY LAKEWOOD, CO 80228			TRINH, MICHAEL MANH	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EX

Office Action Summary	Application No. 10/719,907	Applicant(s) FARNWORTH ET AL.	
	Examiner Michael Trinh	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 76-113 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 76-89 and 91-113 is/are allowed.
- 6) ☒ Claim(s) 90 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/12/05 & 6/30/05</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2822

DETAILED ACTION

*** This office action is in response to Applicant's Amendment filed on August 12, 2005.

Claims 76-113 are pending.

*** The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

1. Claim 90 is rejected under 35 U.S.C. 102(e) as being anticipated Farnworth(6,620,731).

Farnworth teaches (at Figs 3A-3F; col 8, line 24 through col 9) a method for fabricating a semiconductor components comprising at least the steps of: providing a plurality of semiconductor die on a substrate 10A having a first side, a second side, and a thickness, the die comprising a plurality of die contacts 18A (Fig 3A; col 8, lines 26-52); forming a plurality of contact bumps 38A on the die contact 18A (Figs 3E-3F) configured to provide contacts for stacking or testing (Figs 3E-3F, 4A, 5A,8-9; col 8, line 61 through col 9); forming a plurality of conductive vias 34A in the dice in electrical communication with the die contacts 18A and the contact bumps 38A (Fig 3D; col 8, lines 53-60); and etching the substrate to expose portions of the conductive vias 34A (Figs 3E-3F; col 8, line 61 through col 9).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2822

3. Claim 90 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuisl (6,020,217) taken with Finnila (5,426,072).

Kuisl teaches (at Figs 2A-2F; col 4, line 1 through col 5) a method for fabricating a semiconductor components comprising at least the steps of: providing a plurality of semiconductor die 2 on a substrate 5 having a first side, a second side, and a thickness, the die comprising a plurality of die contacts 3 (Fig 2A); forming a plurality of conductive vias 7 in the dice in electrical communication with the die contacts 3 (Fig 2B); and etching the substrate to expose portions of the conductive vias 7/8 (Fig 2C; col 4, line 46 through col 5).

Kuisl already teaches the dice having die contacts 3, but lacks forming a plurality of contact bumps on the die contacts to provide contacts for stacking or testing.

However, Finnila teaches (at Figs 5-6) forming the dice having die contacts 21 and then forming a plurality of contact bumps 23 on the die contacts 21 so as to provide contacts for stacking.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to fabricate the semiconductor component of Kuisl by forming a plurality of contact bumps on the die contacts as taught by Finnila. This is because of the desirability to employ the contact bumps to provide contacts for stacking a plurality of semiconductor devices in order to fabricate a multi-layered three dimensional integrated circuits.

Allowable Subject Matter

4. Claims 76-89,91-113 are allowed for reasons as already of record.

Response to Amendment

5. Applicant's remarks filed August 12, 2005 about claim 90 have been fully considered but they are moot in view of new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2822


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

*** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael M. Trinh whose telephone number is (571) 272- 1847. The examiner can normally be reached on M-F: 8:30 Am to 5:00 Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number is (571) 273-8300

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Oacs-16


Michael Trinh
Primary Examiner